

Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed**1.1. Name of the Data, data collection Project, or data-producing Program:**

2000 Photo Mosaics and Hyperspectral Imagery for the Main Eight Hawaiian Islands
Utilized to Map Shallow Water Benthic Habitats

1.2. Summary description of the data:

This project is a cooperative effort among the National Ocean Service, National Centers for Coastal Ocean Science, Center for Coastal Monitoring and Assessment; the University of Hawaii; and Analytical Laboratories of Hawaii, LLC. The goal of the work was to develop coral reef mapping methods and compare benthic habitat maps generated by photointerpreting georeferenced color aerial photography and hyperspectral imagery. Aerial photographs were acquired for the Main Eight Hawaiian Islands Benthic Mapping Project in 2000 by NOAA Aircraft Operation Centers aircraft and National Geodetic Survey cameras and personnel. Approximately 1,500, color, 9 by 9 inch photos were taken of the coastal waters of the Main Eight Hawaiian Islands at 1:24,000 scale. Specific sun angle and maximum percent cloud cover restrictions were adhered to when possible during photography missions to ensure collection of high quality imagery for the purpose of benthic mapping. In addition, consecutive photos were taken at 60 percent overlap on individual flight lines and 30 percent overlap on adjacent flight lines to allow for orthorectification and elimination of sun glint. The enhanced spectral resolution of hyperspectral and control of bandwidths of multispectral data yield an advantage over color aerial photography particularly when coral health and time series analysis of coral reef community structure are of interest. The AURORA hyperspectral imaging system collected 72 ten nm bands in visible and near infrared spectral range with a 3 meter pixel resolution. The data was processed to select band widths, which optimized feature detection in shallow and deep water. The digital scans of aerial photos and hyperspectral imagery were orthorectified to eliminate sources of spatial distortion. With these orthorectified images photointerpreters can accurately and reliably delineate boundaries of features in the imagery as they appear on the computer monitor using a software interface such as the Habitat Digitizer.

1.3. Is this a one-time data collection, or an ongoing series of measurements?

One-time data collection

1.4. Actual or planned temporal coverage of the data:

2000

1.5. Actual or planned geographic coverage of the data:

W: -160.2986, E: -155.1511, N: 22.2799, S: 19.2604

1.6. Type(s) of data:

(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)
raster digital data

1.7. Data collection method(s):

(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:**1.8.1. If data are from another observing system, please specify:****2. Point of Contact for this Data Management Plan (author or maintainer)****2.1. Name:**

NCCOS Scientific Data Coordinator

2.2. Title:

Metadata Contact

2.3. Affiliation or facility:

National Centers for Coastal Ocean Science

2.4. E-mail address:

NCCOS.data@noaa.gov

2.5. Phone number:**3. Responsible Party for Data Management**

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

NCCOS Scientific Data Coordinator

3.2. Title:

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Process Steps:

- 2002-01-01 00:00:00 - HYPERSPECTRAL IMAGERY The hyperspectral image data were collected using the AURORA Hyperspectral Imaging data acquisition system (Advanced Power Technologies, Inc). Navigation data were incorporated using the Applanix inertial navigation system. The imaging system was used to collect 72 nm bands in the visible and near infrared spectral range at a three meter pixel resolution. The raw data were processed by the Analytical Laboratories of Hawaii, LLC using Research Systems, Inc. ENVI software. Band combinations were selected which optimized benthic habitat information in shallow and deep water and scenes were converted into RGB composites. The hyperspectral images were georeferenced and mosaiced using Scene Stitcher, a stand-alone software program produced by Advanced Power Technologies, Inc. PHOTOMOSAICSAerial photographs were acquired for the main Hawaiian Islands Benthic Mapping Projects in 2000 by NOAA Aircraft Operation Centers aircraft and National Geodetic Survey cameras and personnel. Approximately 1,449, color 9x9 inch photos were taken of the coastal waters of the main Hawaiian Islands at a 1:24,000 scale. Prints and diapositives were created from the original negatives. Diapositives were then scanned at a resolution of 500 dpi using a photogrammetric quality scanner, yielding one by one meter pixels for the 1:24,000 scale photography. All scans were saved in TIFF format for the purposes of orthorectification and photointerpretation. Georeferencing/mosaicing of the TIFFs was performed using a variety of softcopy photogrammetric software including Socet Set 4.2.1, Autometric Softplotter, PCI OrthoEngine, and Erdas OrthoBASE. First lens correction parameters were applied to each frame to eliminate image distortion. Airborne kinematic GPS was then used, to provide first order georegistration. Image to image tie-points were then used to further co-register the imagery, especially for photos taken over open water when ground control points were not available. Fixed ground features visible in the scanned photos were selected for ground control points (GCPs) which were then used to georeference imagery. GCPs were measured using a Differentially-corrected Global Positioning System (DGPS). We obtained points with a wide distribution

throughout the imagery, especially on peninsulas and outer islands whenever possible since this results in the most accurate registration throughout each image. Only ground control points for terrestrial features were collected due to the difficulty of obtaining precise positions for submerged features. Pre-existing USGS 10-meter digital elevation models were used to correct for relief displacement. Process Date Range is 2000 - 2002

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.7. Data collection method(s)
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

<https://inport.nmfs.noaa.gov/inport/item/39332>

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NMFS Data Documentation Procedural Directive: <http://www.nmfs.noaa.gov/op/pds/documents/04/111/04-111-01.pdf>

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:

National Centers for Coastal Ocean Science

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:

http://ccma.nos.noaa.gov/products/biogeography/hawaii_cd/data/mosaics.aspx

7.3. Data access methods or services offered:

Project information is available online or on CD-ROM through the NCCOS Biogeography Program.;

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection

The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to

identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:

(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):

National Centers for Coastal Ocean Science - Silver Spring, MD

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

Discuss data back-up, disaster recovery/contingency planning, and off-site data storage relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.